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NOTES FROM THE DIVISION OF HYDROGRAPHY.

U. S. GEOLOGICAL SURVEY.

ALASKAN EXPLORATION. — During the past field season the United States Geological Survey has had four parties engaged in exploring Alaska. The first, under Mr. W. J. Peters, assisted by Mr. F. C. Schrader, started from Skagway early in February, and went 1,200 miles with dog team to Bergman, a trading post on the Koyukuk river in central Alaska, near the Arctic Circle, where a cache of canoes and provisions had been made the previous year. The party then penetrated north to the divide of the Yukon, making portages to the headwaters of the Colville river, and descended through an entirely unknown country to the Arctic Ocean. The country from the mountains to the sea was found to be rolling tundra. Owing to the lateness of the season, the party were obliged to skirt the coast to the west in canoes and whale boat in the hope of reaching Cape Nome before the ice set. After working down the coast for 350 miles they were picked up by a collier.

The second party, under Mr. T. G. Gerdine, assisted by Mr. A. J. Collier, penetrated the Seward Peninsula, on which is located Cape Nome, for about 100 miles, and spent the season in completing the exploration, and mapping the western part of the peninsula, north of the Nome mining district, which was surveyed last year.

The third party, under Mr. W. C. Mendenhall, assisted by Mr. D. L. Reaburn, starting from Fort Yukon, surveyed the Yukon river for a distance of about 200 miles down its course, then crossing the divide to Bergman, where use was made of the cache established the year before, penetrated unknown country to the westward, and descended the Kowak river to Kotzebue Sound, an arm of the Arctic Ocean.

The fourth party, under the command of Mr. A. H. Brooks, worked in south-eastern Alaska examining the mineral deposits and exploring the region from Juneau to Skagway. Two months were spent on Prince of Wales Island and the adjacent mainland.

The work of the Geological Survey of the past year practically marks the close of the exploration stage of its activities in Alaska. The districts of which nothing is known are now of less extent than formerly, and henceforth more detailed mapping and examination of the Territory's resources will take the place of the rapid

and often daring reconnaissance trips hitherto necessary. The size and remoteness of the country, the shortness of the field season, the difficulties of travel, and the danger of losing supplies or of being caught by winter, have made the exploration of Alaska comparable to the work of Lewis and Clarke in their early journey across the continent; but in spite of the difficulties, the parties have carried out their work through five seasons without failure or loss of life.

THE U. S. GEOLOGICAL SURVEY has completed the work undertaken in the summer, in co-operation with the Coast and Geodetic Survey, to redetermine the line of the boundary between the United States and Canada, from the crest of the Rocky Mountains to the Pacific Ocean. The line traversed the Rocky Mountains and the Cascade Range and an intermediate hilly country. The trails, once kept open by the Indians, are now greatly obstructed by falling timber, and the surveyors find the easiest routes to be the paths worn by the bears and deer.

IN IDAHO, Prof. Israel C. Russell has discovered an artesian basin over 100 miles in length, with a western limit (not yet determined) in the vicinity of Nampa and Caldwell. The land which can be supplied from this basin lies along the Snake River and in Bruneau Valley.

THE INVESTIGATIONS conducted by Mr. Charles M. Hall, in the valley of the Red River of the North, have revealed two artesian basins underlying a large portion of the upper valley. The more important of the two is the eastern continuation of the Dakota Artesian Basin, with its eastern limit marked by a line running north and south not far from the middle of the Red River Valley, where the water-bearing horizon comes to within 200 feet of the surface. Twenty-five miles to the westward the depth ranges from 400 to 600 feet. The water is found in clear, white sand, and it is much softer than the surface waters.

The second basin lies above the first, at depths ranging from 50 to 150 feet. The water comes from the sand layers at the base of the glacial drift, and is harder than that from the Dakota basin. It supplies hundreds of flowing wells in farms and towns.

A third water horizon lies still nearer the surface.